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40. (New) A recombinant protein comprising an A chain of a ricin-like toxin, a B chain of a ricin-like toxin and a heterologous linker amino acid sequence, linking the A and B chains, wherein the linker sequence contains a cleavage recognition site for a disease-specific protease selected from the group consisting of: a cancer associated protease, a viral protease, a fungal protease, and a parasitic protease.

41. (New) The recombinant protein of claim 40 wherein the A chain is ricin A chain, abrin toxin A chain, diphtheria toxin A chain, or Domain II/III of Pseudomonas exotoxin.

42. (New) The recombinant protein of claim 40 wherein the A chain is volkensin toxin A chain, cholera toxin A chain, viscumin toxin A chain, modeccin toxin A chain or shiga toxin A chain.

43. (New) The recombinant protein of claim 40 wherein the B chain is ricin B chain, abrin toxin B chain, diphtheria toxin B chain, or Domain I of Pseudomonas exotoxin.

44. (New) The recombinant protein of claim 40 wherein the B chain is volkensin toxin B chain, cholera toxin B chain, viscumin toxin A chain, modeccin toxin B chain or shiga toxin B chain.

45. (New) The recombinant protein of claim 40 wherein the cancer-associated protease is selected from the group consisting of: cathepsin B, an Epstein-Barr virus specific protease, a matrix metalloproteinase, cathepsin L, cathepsin D, urokinase-type plasminogen activator, tissue-type plasminogen activator, human prostate-specific antigen, kallikrein, neutrophil elastase, and calpain.

46. (New) The recombinant protein of claim 40 wherein the parasitic protease is a Plasmodium falciparum protease.

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47. (New) The recombinant protein of claim 40 wherein the viral protease is selected from the group consisting of: human cytomegalovirus, human herpes virus, varicella zoster virus, hepatitis A virus, hepatitis C virus and infectious laryngotracheitis virus.

48. (New) The recombinant protein of claim 40 wherein the fungal protease is a Candida acid protease.

A1 49. (New) The recombinant protein of claim 40 having the linker amino acid sequence according to SEQ ID No. 40; SEQ ID No. 41; SEQ ID No. 42; SEQ ID No. 43; SEQ ID No. 44; SEQ ID No. 45; SEQ ID No. 46; SEQ ID No. 55; SEQ ID No. 56; SEQ ID No. 57; SEQ ID No. 58; SEQ ID No. 59; SEQ ID No. 60; SEQ ID No. 61; SEQ ID No. 62; SEQ ID No. 63; SEQ ID No. 64; SEQ ID No. 65; SEQ ID No. 66; SEQ ID No. 67; SEQ ID No. 68; SEQ ID No. 69; SEQ ID No. 70; SEQ ID No. 71; SEQ ID No. 72; SEQ ID No. 75; SEQ ID No. 78; SEQ ID No. 81; SEQ ID No. 84; SEQ ID No. 87; SEQ ID No. 90; SEQ ID No. 93; SEQ ID No. 96; SEQ ID No. 99; SEQ ID No. 102; SEQ ID No. 105; SEQ ID No. 108; SEQ ID No. 111; SEQ ID No. 114; SEQ ID No. 117; SEQ ID No. 120; SEQ ID No. 123; or SEQ ID No. 126.

50. (New) The recombinant protein of claim 45, wherein the A chain is ricin A chain, the B chain is ricin B chain, and the heterologous linker contains a cleavage recognition site for a matrix metalloproteinase.

51. (New) The recombinant protein of claim 50, wherein the heterologous linker contains a cleavage recognition site for matrix metalloproteinase-9.

52. (New) The recombinant protein of claim 45, wherein the A chain is ricin A chain, the B chain is ricin B chain, and the heterologous linker contains a cleavage recognition site for human prostate-specific antigen.

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53. (New) The recombinant protein of claim 47, wherein the A chain is ricin A chain, the B chain is ricin B chain, and the heterologous linker contains a cleavage recognition site for hepatitis C virus.

54. (New) A recombinant protein according to claim 40 comprising a truncated A chain from a ricin-like toxin.

55. (New) A recombinant protein according to claim 54 comprising a truncated A chain of ricin A.

56. (New) A recombinant protein according to claim 40 comprising a truncated B chain from a ricin-like toxin.

57. (New) A recombinant protein according to claim 54 comprising a truncated A chain of ricin B.

58. (New) A pharmaceutical composition for treating cancer or a fungal, or viral, or parasitic infection in an animal comprising the recombinant protein of claim 40 and a pharmaceutically acceptable carrier, diluent or excipient.

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